Details of RRAT

RRAT is divided into two parts:
Part 1 consists of a Computer Test and,
Part 2 consists of an Online Interview.

Refer to the Konnifel website for a broad understanding of RRAT: www.konnifel.com/rrat

RRAT Part 1- The Computer Test

Part 1 of the RRAT is a multiple-choice computer test with three sections, testing a student's subject knowledge, fundamental research skills and specific skill proficiency. Your RRAT Part 1 Score is called your RRAT Skill Factor since this section tests your knowledge, understanding and skills. A minor weightage in this section is also given to your academic achievement (CGPA) and any work experience or research publications that you may have. The weightage of the latter is kept minimal to ensure that any candidates are not disincentivised owing to lack of publications or experience.

RRAT Skill Factor Basics	
RRAT Computer Test Sections	● Section 1: Subject Knowledge ● Section 2: Fundamental Research Skills ● Section 3: Specific Skills Proficiency
Test Format	Computer Test, Multiple Choice Questions
Skill Factor Test duration	1- 1.5 hours
Skill Factor Test Total Score	50

The RRAT Skill Factor Test contains 3 sections:

- Subject Knowledge
- Fundamental Research Skills
- Specific Skills proficiency

These together form the RRAT Part 1 Test, with a total of 70-100 MCQ questions, to be answered in 1-1.5 hours, depending on your education level and selected skills.

The chart below provides more insight into what each section of the Skill Factor Test includes:

Subject Knowledge	• 26 to 40 MCQ questions • 30 minutes • Testing your knowledge of the subject that your highest degree is in, commensurate with your degree level • Learn more about **subjects in the following section.**
Fundamental Research Skills	• 24 to 31 MCQ questions • 25-35 minutes • Testing your basic research skills like reading and writing. • Learn more about the **fundamental research skills test below.**
Specific Skills Proficiency	• 10 to 40 MCQ questions • 10-40 minutes • Testing your proficiency on the skills that you select in your enrollment form. • Learn more about **specific skills tests below**

Subject Knowledge Test

This 30-minute section will test you on your subject knowledge commensurate with your education level. For eg; if you are currently pursuing an MSc in Biology, this section will test your understanding of Biology according to master level. In the total score, this section has 15% weightage. Also, depending on how calculation-heavy your subject is, the total number of questions in this section will be 26 or 40. Please refer to the table below to know the total number of questions for your subject test.

Subject	Level	No. of Questions	Time
Biology	Bachelors and Masters	40 questions	30 minutes

Biotechnology	Bachelors and Masters	40 questions	30 minutes
Biochemistry	Bachelors and Masters	40 questions	30 minutes
Biophysics	Bachelors and Masters	40 questions	30 minutes
Botany	Bachelors and Masters	40 questions	30 minutes
Zoology	Bachelors and Masters	40 questions	30 minutes
Chemistry	Bachelors and Masters	40 questions	30 minutes
Physics	Bachelors and Masters	26 questions	30 minutes
Computer Science	Bachelors and Masters	40 questions	30 minutes
Environmental Sciences	Bachelors and Masters	40 questions	30 minutes
Mathematics	Bachelors and Masters	26 questions	30 minutes
Statistics	Bachelors and Masters	26 questions	30 minutes
Public Health	Bachelors and Masters	40 questions	30 minutes
Commerce	Bachelors and Masters	40 questions	30 minutes
Economics	Bachelors and Masters	40 questions	30 minutes
Finance	Bachelors and Masters	40 questions	30 minutes
Financial Management	Bachelors and Masters	40 questions	30 minutes
HR Management	Bachelors and Masters	40 questions	30 minutes

Marketing Management	Bachelors and Masters	40 questions	30 minutes
International Business	Bachelors and Masters	40 questions	30 minutes
Political Science	Bachelors and Masters	40 questions	30 minutes

History	Bachelors and Masters	40 questions	30 minutes
Sociology	Bachelors and Masters	40 questions	30 minutes
Psychology	Bachelors and Masters	40 questions	30 minutes
Civil Engineering	Bachelors and Masters	40 questions	30 minutes
Mechanical Engineering	Bachelors and Masters	40 questions	30 minutes
Computer Science Engineering	Bachelors and Masters	40 questions	30 minutes
Electronics Engineering	Bachelors and Masters	40 questions	30 minutes
Electrical Engineering	Bachelors and Masters	40 questions	30 minutes
Biotech Engineering	Bachelors and Masters	40 questions	30 minutes

Fundamental Research Skills Test

This section will test you on basic research skills that are considered important to conduct research in your field. For students of Bachelor's level or equivalent degree, the weightage of this section in the total score is 14% and for students of masters or above level, the weightage of this section in the total score is 7%. The basic skills also differ depending on your field. Refer to the table below to understand the fundamental skills you will be tested on along with the

number of questions and time duration depending on your education level.

Subject	Level	Fundamental Skills	No. of Questions	Time
Biology	Bachelors	• Reading and Writing • Biology Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	28 questions	35 minutes
Biology	Masters	• Reading and Writing • Biology Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes
Biotechnology	Bachelors	• Reading and Writing • Biotechnology Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	28 questions	35 minutes
Biotechnology	Masters	• Reading and Writing • Biotechnology Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes
Biochemistry	Bachelors	• Reading and Writing • Biochemistry Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	28 questions	35 minutes
Biochemistry	Masters	• Reading and Writing • Biochemistry Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes
Biophysics	Bachelors	• Reading and Writing • Biophysics Basic Lab Skills	28 questions	35 minutes

		• Basic Data Analysis • Mathematics and Statistics		
Biophysics	Masters	• Reading and Writing • Biophysics Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes
Botany	Bachelors	• Reading and Writing • Botany Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	28 questions	35 minutes
Botany	Masters	• Reading and Writing • Botany Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes
Zoology	Bachelors	• Reading and Writing • Zoology Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	28 questions	35 minutes
Zoology	Masters	• Reading and Writing • Zoology Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes
Chemistry	Bachelors	• Reading and Writing • Chemistry Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	28 questions	35 minutes
Chemistry	Masters	• Reading and Writing • Chemistry Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes
Physics	Bachelors	• Reading and Writing • Physics Basic Lab Skills	28 questions	35 minutes

		• Basic Data Analysis • Mathematics and Statistics		
Physics	Masters	• Reading and Writing • Physics Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes
Computer Science	Bachelors	• Reading and Writing • Computer Science Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	28 questions	35 minutes
Computer Science	Masters	• Reading and Writing • Computer Science Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes
Environmental Sciences	Bachelors	• Reading and Writing • Environmental Sciences Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	28 questions	35 minutes
Environmental Sciences	Masters	• Reading and Writing • Environmental Sciences Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes
Mathematics	Bachelors	• Reading and Writing • Mathematics Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	28 questions	35 minutes
Mathematics	Masters	• Reading and Writing • Mathematics Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes

Statistics	Bachelors	• Reading and Writing • Statistics Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	28 questions	35 minutes
Statistics	Masters	• Reading and Writing • Statistics Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes
Public Health	Bachelors	• Reading and Writing • Public Health Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	28 questions	35 minutes
Public Health	Masters	• Reading and Writing • Public Health Basic Lab Skills • Basic Data Analysis • Mathematics and Statistics	24 questions	25 minutes
Commerce	Bachelors	• Microsoft and Statistics • Data Analysis and Financial Modelling • Case study analysis • Reading and Writing	28 questions	35 minutes
Commerce	Masters	• Microsoft and Statistics • Data Analysis and Financial Modelling • Case study analysis • Reading and Writing	24 questions	25 minutes
Economics	Bachelors	• Microsoft and Statistics • Data Analysis and Financial Modelling • Case study analysis • Reading and Writing	28 questions	35 minutes
Economics	Masters	• Microsoft and Statistics • Data Analysis and Financial Modelling • Case study analysis • Reading and Writing	24 questions	25 minutes
Finance	Bachelors	• Microsoft and Statistics	28	35

		• Data Analysis and Financial Modelling • Case study analysis • Reading and Writing	questions	minutes
Finance	Masters	• Microsoft and Statistics • Data Analysis and Financial Modelling • Case study analysis • Reading and Writing	24 questions	25 minutes
Financial Management	Bachelors	• Microsoft and Statistics • Data Analysis and Financial Modelling • Case study analysis • Reading and Writing	28 questions	35 minutes
Financial Management	Masters	• Microsoft and Statistics • Data Analysis and Financial Modelling • Case study analysis • Reading and Writing	24 questions	25 minutes
Human Resources Management	Bachelors	• Microsoft and Statistics • Data Analysis and Financial Modelling • Case study analysis • Reading and Writing	28 questions	35 minutes
Human Resources Management	Masters	• Microsoft and Statistics • Data Analysis and Financial Modelling • Case study analysis • Reading and Writing	24 questions	25 minutes
Marketing Management	Bachelors	• Microsoft and Statistics • Data Analysis and Financial Modelling • Case study analysis • Reading and Writing	28 questions	35 minutes
Marketing Management	Masters	• Microsoft and Statistics • Data Analysis and Financial Modelling • Case study analysis • Reading and Writing	24 questions	25 minutes
Political Science	Bachelors and Masters	• Reading Comprehension • Research Methodology • Qualitative Analysis	31 questions	40 minutes

History	Bachelors and Masters	• Reading and Writing • Research Methodology • Qualitative Analysis	31 questions	40 minutes
Sociology	Bachelors and Masters	• Reading and Writing • Research Methodology • Qualitative Analysis	31 questions	40 minutes
Psychology	Bachelors and Masters	• Reading and Writing • Research Methodology • Qualitative Analysis	31 questions	40 minutes
Civil Engineering	Bachelors	• Data analysis • Mathematics and Statistics • Critical reasoning and Aptitude • Reading and writing	28 questions	35 minutes
Civil Engineering	Masters	• Data analysis • Mathematics and Statistics • Critical reasoning and Aptitude • Reading and writing	24 question	25 minutes
Mechanical Engineering	Bachelors	• Data analysis • Mathematics and Statistics • Critical reasoning and Aptitude • Reading and writing	28 questions	35 minutes
Mechanical Engineering	Masters	• Data analysis • Mathematics and Statistics • Critical reasoning and Aptitude • Reading and writing	24 question	25 minutes
Computer Science Engineering	Bachelors	• Data analysis • Mathematics and Statistics • Critical reasoning and Aptitude • Reading and writing	28 questions	35 minutes
Computer Science Engineering	Masters	• Data analysis • Mathematics and Statistics • Critical reasoning and	24 question	25 minutes

		Aptitude ● Reading and writing		
Electronics Engineering	Bachelors	● Data analysis ● Mathematics and Statistics ● Critical reasoning and Aptitude ● Reading and writing	28 questions	35 minutes
Electronics Engineering	Masters	● Data analysis ● Mathematics and Statistics ● Critical reasoning and Aptitude ● Reading and writing	24 questions	25 minutes
Electrical Engineering	Bachelors	● Data analysis ● Mathematics and Statistics ● Critical reasoning and Aptitude ● Reading and writing	28 questions	35 minutes
Electrical Engineering	Masters	● Data analysis ● Mathematics and Statistics ● Critical reasoning and Aptitude ● Reading and writing	23 question	25 minutes
Biotech Engineering	Bachelors	● Data analysis ● Mathematics and Statistics ● Critical reasoning and Aptitude ● Reading and writing	28 questions	35 minutes
Biotech Engineering	Masters	● Data analysis ● Mathematics and Statistics ● Critical reasoning and Aptitude ● Reading and writing	24 question	25 minutes

Specific Skills Proficiency Skills Test

This will test you on the specific skills you choose during your enrolment. In the total score, this section has 7% weightage for Bachelors candidates and 14% weightage for Masters candidates

since Bachelors candidates are at an earlier level of skill development. Every Skill will have 10 questions, to be answered in 10 minutes. Please refer to the lists below to know the skills from which you can choose. You can choose any skills from your field or from any other field too.

List of Skills in Engineering:

A. Mechanical Engineering:

1. Arena
2. FlexSim
3. Gurobi
4. CPLEX
5. AutoCAD Plant 3D
6. ANSYS
7. ABAQUS
8. Autodesk Fusion 360
9. Siemens NX
10. Granta MI
11. GibbsCAM
12. Delmia
13. SAP
14. Oracle
15. Siemens Sinumerik
16. Fanuc
17. SAP PM
18. AutoCAD
19. CATIA
20. SolidWorks
21. GT-Power
22. AVL-CRUISE
23. CarSim
24. CARMaker
25. VehicleSim
26. MSC Adams
27. Star-CCM+

28. OpenFOAM
29. MATLAB
30. Simulink
31. IPG CarMaker
32. Virtual Test Drive
33. dSPACE
34. PTC Creo

B. Civil Engineering:

1. AutoCAD 3D
2. BIM
3. Geometrical Construction
4. Matlab
5. SAP2000
6. Structural Analysis
7. EPANET Fluid Dynamics
8. ARCGIS

C. Electrical Engineering:

1. MATLAB
2. Simulink
3. SCADA Software
4. ETAP
5. Programming Language (C++,C)
6. Programming Language (Python)
7. Proteus And Pspice
8. Electrical systems

D. Electronics Engineering:

1. Embedded systems
2. Electromagnetics
3. Analog Circuits
4. Circuit Theory

5. Signal Processing
6. Schematic Capture
7. Data Acquisition
8. Data Acquisition
9. Microcontrollers
10. RF Testing
11. Firmware Development
12. Raspberry Pi
13. Verilog
14. OOP
15. Power Systems

E. Computer Science Engineering:

1. Python
2. C++
3. SQL
4. DSA
5. OOPs
6. JavaScript
7. Linux
8. HTML
9. Git/Github
10. API (Application Programming Interface)
11. Oracle database
12. Cloud Computing

F. Biotech Engineering

1. Antibiotic selection
2. Assays for antibodies
3. Biological databases
4. Bioinformatics
5. Biostatistics

6. BLAST
7. Centrifugation
8. Comparative Anatomy
9. Dissection in Plants and Animals
10. DNA Extraction
11. DNA Isolation
12. DNA Quantification
13. DNA Separation Techniques
14. Eastern blotting
15. Electrophoresis
16. ELISA
17. Enzymatic studies
18. Enzyme kinetics
19. FISH
20. Flow Cytometry
21. Fluorescence Microscopy
22. Fluorescence techniques
23. Gene prediction
24. Gene Prediction
25. High throughput sequencing
26. Isolation of microorganisms
27. Light Microscopy
28. Lyophilization
29. Mass Spectrometry
30. Microarray
31. Molecular Cloning
32. Northern Blotting
33. PCR
34. Plant cell disruption
35. Preparation of culture media
36. Preparation of solutions
37. Protein Isolation & Purification
38. Protein structure prediction
39. Protoplast culture and isolation
40. RNA Isolation
41. Southern Blotting

42. Spectrofluorometry
43. Spectrophotometry
44. Staining
45. Streaking techniques
46. Surface tension and Viscosity
47. Taxonomic identification using manuals and keys
48. UV Spectrophotometer
49. Western Blotting
50. Western blotting
51. X-ray Crystallography

List of skills in Science:

A. Chemistry

1. Column chromatography
2. Crystallisation
3. Distillation techniques
4. HPLC (High-Performance Liquid Chromatography)
5. IR spectroscopy
6. NMR Spectroscopy
7. Solid State Synthesis
8. Titrimetry
9. TLC

B. Environmental science

1. Qualitative Risk Assessment
2. Dissolved Oxygen
3. BOD and Cod
4. GIS
5. Soil sampling and analysis

C. Computer Science

1. Programming with C++
2. Programming with Java
3. HTML
4. Logic Gates
5. Data Structures
6. Python
7. SQL
8. OOPs
9. JavaScript
10. Linux
11. Git/Github
12. MS Excel
13. Operating System
14. API (Application Programming Interface)
15. Jupyter Notebook
16. Anaconda
17. Labelling

D. Physics

1. Reflection, Refraction and Dispersion studies
2. Diffraction studies
3. Capacitor
4. Galvanometer
5. Potentiometer
6. Spherometer
7. Determination of frequency
8. Determination of inductance
9. Optics
10. X-ray diffraction studies
11. Dielectric constant determination
12. Heat and Wave Equation
13. Tensor analysis

14. Dirac delta, Beta, Gamma Function
15. Special Function
16. Lagrangian-hamiltonian formalism
17. Numerical technique

E. Mathematics/Statistics

1. Matlab
2. Matrix Operation
3. Second and third-order solution families
4. Partial differential equation
5. Legendre polynomial
6. Fourier Series, Fourier sine and cosine series
7. Queuing Models

F. Biology/Biotechnology/Biochemistry/Biophysics/Zoology/Botany/Public Health

52. Alignment - Local Alignment and Global Alignment
53. Antibiotic selection
54. Assays for antibodies
55. Biological databases
56. BLAST
57. Centrifugation
58. Comparative Anatomy
59. Dissection in Plants and Animals
60. DNA Extraction
61. DNA Isolation
62. DNA Quantification
63. DNA Separation Techniques
64. Eastern blotting
65. Electrophoresis
66. ELISA
67. Enzymatic studies
68. Enzyme kinetics
69. FISH

70. Flow Cytometry
71. Fluorescence Microscopy
72. Fluorescence techniques
73. Gene prediction
74. Gene Prediction
75. High throughput sequencing
76. Isolation of microorganisms
77. Light Microscopy
78. Lyophilization
79. Mass Spectrometry
80. Microarray
81. Molecular Cloning
82. Northern Blotting
83. PCR
84. Plant cell disruption
85. Preparation of culture media
86. Preparation of solutions
87. Protein Isolation & Purification
88. Protein structure prediction
89. Protoplast culture and isolation
90. RNA Isolation
91. Southern Blotting
92. Spectrofluorometry
93. Spectrophotometry
94. Staining
95. Streaking techniques
96. Surface tension and Viscosity
97. Taxonomic identification using manuals and keys
98. UV Spectrophotometer
99. Western Blotting
100. Western blotting
101. X-ray Crystallography
102. Biostatistics
103. Bioinformatics

List of Skills in Commerce and Management:

1. Bloomberg
2. FactSet
3. SPSS
4. Tableau
5. Power BI
6. SurveyMonkey
7. Google Analytics
8. SQL
9. Microsoft Project
10. Trello
11. QlikView
12. SAP
13. Geographical Information Systems (GIS)
14. Google Ads or Facebook Ads Manager
15. Blockchain Analysis
16. Klipfolio
17. Domo
18. WordPress
19. Joomla
20. AR and VR technologies
21. Expensify
22. Concur
23. Adobe Acrobat or DocuWare
24. Payroll software
25. HTML and CSS
26. Python
27. Zendesk
28. Supply Chain Software
29. SEO
30. R
31. BPMN
32. TurboTax

33. Point of Sale (POS)
34. MetaTrader for currency and forex trading
35. Oracle
36. Advanced Excel (VBA, Macros, Pivot table)
37. Stock Market Analysis Tools
38. Business Analytics Tools
39. Adobe Analytics

Note: Humanities will not have the Skills Proficiency Test.

RRAT Part 2: The Online Interview

This is the second part of your RRAT exam, where you will be sitting for an online automated interview. This is mandatory for all students across streams and subjects. This will have an equal weightage as the computed test. All students should give equal attention to this section. The interview will be to gauge an understanding of your interest in research, sincerity, work ethic and soft skills.